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IS 13857 (1993): Tea - Determination of acid-insoluble ash
[FAD 6: Stimulant Foods]



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भारतीय मानक

चाय — अम्ल-अघुलनशील भस्म ज्ञात करना

Indian Standard

TEA — DETERMINATION OF ACID-INSOLUBLE ASH

UDC 663.95 : 543.822

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

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Price Group 1

NATIONAL FOREWORD

This Indian Standard which is identical with ISO 1577 : 1987 'Tea — Determination of acid-insoluble ash' issued by the International Organization for Standardization (ISO), was adopted by the Bureau of Indian Standards on the recommendations of the Stimulant Foods Sectional Committee (FAD 23), and approval of the Food and Agriculture Division Council.

In the adopted standard certain terminology and conventions are not identical with those used in Indian Standards; attention is drawn specially to the following:

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'; and
- b) Comma (,) has been used as a decimal marker, while in Indian Standards, the current practice is to use point (.) as the decimal marker.

CROSS REFERENCES

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their place are listed below along with their degree of equivalence for the editions indicated:

<i>International Standard</i>	<i>Indian Standard</i>	<i>Degree of Correspondence</i>
ISO 1572 : 1980	IS 13852 : 1993 Tea — Preparation of ground sample of known dry matter content	Identical
ISO 1575 : 1987	IS 13854 : 1993 Tea — Determination of total ash	Identical

In reporting the results of a test made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'.

Indian Standard

TEA — DETERMINATION OF ACID-INSOLUBLE ASH

1 Scope and field of application

This International Standard specifies a method for the determination of the acid-insoluble ash from tea.

2 References

ISO 1572, *Tea — Preparation of ground sample of known dry matter content.*

ISO 1575, *Tea — Determination of total ash.*

3 Definition

For the purposes of this International Standard, the following definition applies.

acid-insoluble ash: The part of the total ash, obtained in accordance with ISO 1575, remaining after treatment with hydrochloric acid solution under the conditions specified in this International Standard.

4 Principle

Treatment of the total ash with hydrochloric acid solution, filtration, ignition and weighing of the residue.

5 Reagents

All reagents shall be of recognized analytical grade. The water used shall be distilled water or water of equivalent purity.

5.1 Hydrochloric acid solution

Dilute 1 volume of concentrated hydrochloric acid (ρ_{20} 1,16 to 1,18 g/ml) with 2,5 volumes of water.

WARNING — Concentrated hydrochloric acid is corrosive, has an irritant vapour and causes burns.

5.2 Silver nitrate, approximately 17 g/l solution.

6 Apparatus

Usual laboratory apparatus, and the following items:

6.1 Dish, of capacity 50 to 100 ml, made of platinum, porcelain or other material unaffected by the conditions of the test, used for the determination of total ash.

NOTE — It is considered that silica dishes are unsuitable for use with this test.

6.2 Furnace, capable of being controlled at $525 \pm 25^\circ\text{C}$.

6.3 Boiling water bath.

6.4 Filter paper, ashless.

6.5 Desiccator, containing an efficient desiccant.

6.6 Analytical balance.

7 Procedure

7.1 Test portion

See ISO 1575.

7.2 Determination

To the total ash obtained as described in ISO 1575, contained in the dish (6.1), add 25 ml of the hydrochloric acid solution (5.1). Cover the dish with a watch glass to prevent spattering, and boil gently the solution for 10 min. Allow to cool and filter the contents of the dish through the filter paper (6.4). Wash the dish and the filter paper with hot water until the washings are free from the acid, as confirmed by the silver nitrate solution (5.2). Return the filter paper and contents to the dish, evaporate the water carefully on the boiling water bath (6.3) and heat in the furnace (6.2), controlled at $525 \pm 25^\circ\text{C}$, until the residue is free from visible carbon particles. Cool the dish in the desiccator (6.5) and weigh. Heat again in the furnace for 30 min, allow to cool and weigh; repeat these

operations, if necessary, until the difference between two successive weighings does not exceed 0,001 g. Note the lowest mass.

7.3 Number of determinations

Carry out two separate determinations on the residues obtained from the two determinations of total ash.

8 Expression of results

8.1 Method of calculation and formula

The acid-insoluble ash obtained from the ground sample, expressed as a percentage by mass on the dry basis, is equal to

$$m_3 \times \frac{100}{m_0} \times \frac{100}{RS}$$

where

m_0 is the mass, in grams, of the test portion of the ground sample used for the determination of total ash (see ISO 1575);

m_3 is the mass, in grams, of the acid-insoluble ash;

RS is the dry matter content, as a percentage by mass, of the ground sample, determined by the method specified in ISO 1572.

Take as the result the arithmetic mean of the two determinations, provided that the requirement for repeatability (see 8.2) is satisfied.

8.2 Repeatability

The difference between the results of two determinations, carried out simultaneously or in rapid succession by the same analyst, shall not exceed 0,02 g of acid-insoluble ash per 100 g of ground sample.

9 Test report

The test report shall show the method used and the result obtained. It shall also mention any operating details not specified in this International Standard, or regarded as optional, as well as any circumstances that may have influenced the result.

The report shall include all details required for complete identification of the sample.

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